Notebook, PN-Undated.12

This pocket notebook was used by Edison in the late 1880s or early 1890s for notes on chemical experiments, possibly relating to ore milling. The pages are unnumbered. Approximately 25 pages have been used.

Try Hg. on brownmatte -

Try Coke + powdered matte with HCl also H_2SO_4 - Hot say 120 or higher with a good weight on top of filter in jar to make cancel,

See effect of 100 mesh matte in molten Sulphur

Melt matte in Crucible over powerful magnet on cooling Fe Ni will suddenly become magnetic + be pulled to bottom

Mixing ~~Sch~~ Lime with matte (10) parts Fe matte on a Lime fulling to get rid Sulphur, then heating to Silica fettle + Slag off Fe + Ni Carbonate Soda heat

Try 100 mesh matte with Hot Sulphuric + leach Leached material

Try Dead roast 100 mesh malle
with hot pure Sulfuric acid &
test to see what it dissolves

Try Dead Roast 100 m. in closed
jar through which Sulphurous
gas passed -

Heat 100 mesh unroasted with
Crude Petroleum = Bitts Coal Tar
do Asphalt, do Rosin &
desulphurize by dry -

Dead Roast & treat with Rosin
under pressure & test Rosin Clay

Pass powerful Current through
Strip Matte to bring to Vanad
melt white heat on lime
also on Silica; also on
Carbon & see note Effects

Matte heated in vacuo Cu
Cement see what comes off

Melt Caustic Na in Iron
with Matte –
also Carb Soda –

Shutzberg – porous Cup –
NaCl – form CuCl etc &
Na in Cup – passed CO_2 in
White sublimation – also
Zinc Chloride & Chl Zinc
to form CuCl & metallic Zn

Fuse matte or fuse dead roasted
matte by reducing to metallic
state & pass dry Chlorine over
to make Anhydrous Chloride
which Volatilizes & may
Crystallize separately in
Hot Sp. A Tube –

~~Use NaCl porous Cup & Evolve Hydrogen on matte plate &c~~

Use two matte plates & Caustic Na – also K. O one plate – H the other. See effects on Selenium &c. Scale on matte

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Same Experiment with 2 matte plates in NaCl – also HCl & H_2SO_4 –.

Make experiments see if 60 pct Mannellsville Coke & 40 Mallory Iron will or can be reduced to Sponge Iron Cheaply –

See if SulFe also FeCl.
Solutions are precipitable the
Iron when Marble dust
is added & if the Iron oxide
Can be got out of lime - also
ascertain the Effect on the
Ni & Cu Chloride & Sulphate

Sulphurous acid gas passed
over dead roasted Copper
Matte at temperature of 400
deg fahr more or less to form
Sul Fe Cu Ni. ~~and~~ while
dry ~~with a small H2O~~ ~~in~~
metallic Iron ~~+ electrolytic~~
~~& Copper~~ while in steam tight
boiler, the steam coming in
Contact with ore in condenser
+ falling back - to bottom of
quiz - bottom to benchmetals
Small quantity H_2O which
agitated with the metallic Iron
+ Incorporate the Fe Ni Sul to
form a small quantity

Matte 650 fahr pure SO_2 –
This can be reduced to SO_2
Roxiding ethers in chamber brooks
650g + so on

Think ~~dead~~ Reg 100 mesh
matte will burn the Cu reduce
+ sink down in melted burned
asphalt

Try dead roast matte 100
mesh in pure sugar at 300
or more fahr to see if
reduced metallic state + then
add Hg + water to soften
sugar + amalgamate Cu

Try Amalgapetroleum 100
mesh unroasted matte or
Hg under pressure at high
temp to reduce Cu to
metallic state.

Not given to
Fess –

Use dead roast 100 M on top of Mercury Electrode. Evolve H to reduce Cu to Metallic state + amalgamate -

1 oct 1900

Make rotating chamber to churn up 100 mesh pyrite ~~[illegible]~~ + have no heat in chamber but make about 100 feet of brass tube or iron in fire + pass air through it to heat it up to proper temp + pass it through 6 oct. The temp of air can be nicely gauged + pyrite can be reduced to monosulphide perfectly in Re-separation of Calcopy from Fe pyrite -

Dissolve 100 mesh in HCl or by Hot Chlorine - decide solution & precip by Carb. Barium - If Fe Ni Salts are ferric salts, they will be precip as such & Cu as oxide - dry & Heat & seperate Fe Ni Oxide by magnet (If they are proto salts of Ni Fe they will not be precipitated)

Heat Molten Matte with gross acid & phos fume also —

Take Solution Cu & Ni Chloride & Matte Chloride plate all Cu out & then see if the Ni Solution in another Cell with Carbon Cu Electrode can be deposited as powder without making Solution neutral with ammonia - want to save expense of ammonia

Use Matte pellets & oxidize the Fe & Ni. By Hydro Oxides the Cu to CuO - & plus pellets metallic copper only either deposit. Use up pot Carbide Re - dissolve in Hcl & deposit Cu out & etc.

HCl Solution of matte - Cobalt & Iron gets precip Cop & does not precip Ni. Co or Fe they are precip solid:

Cobalt Salts in the Hydro Lefty the Sulphur comes from matte

Shultzberger & Trey Siemens process

Copper at bottom, porous cloth. Cop at top
inflow of sulphide. Cu + Fe on top - precipitate
under at bottom - overflows continuously
Intent to stirred bath with boiling water
containing unwashed 100 mesh wattle
to make fresh solution -

Powder Wattle 100 mesh. 50 pct
Charcoal + heat dull red to see if
Sulphur will go off as Bisulphide
analyze residue for sulphur

As Calcopyrite is very brittle
& Iron pyrite very hard, pulverize
by pressure & then sift
out fine from Coarse
for Copper - perhaps high
Concentrates could be treated
this way

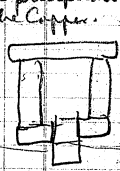
Perhaps Matte could be powdered 150 mesh & then by boiling water & salt. The Cu could be leached out without decomposing the FeNi —

Heat chunk Matte also Sudbury Ore red hot & drop in Cold Water & sift or first fine - dry & Reheat & redrop & then sift & analyze fine & Coarse for Cu Ni

Why do they roast sulphuret? Try Chlorination without roasting —

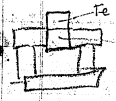
Many to give or worse
without phenol phenol precipitate
diffusion but not alumina
Cones be used

Suppose we have
CuCl FeCl NiCl in
solution If we could cement
Copper to solution + heat
The Copper should combine
with the CuCl to form
insoluble ~~CuCl~~ subchloride
+ we precipitate the whole
of the Copper.



glass jar below diaphr
Solution of CuCl FeCl NiC
powerful magnet drawn up
Fe + Ni Salts OUT

Thus separate solutions or better reverse



draw down by Sulphates etc - See Faraday for most magnetic salts. Strong magnet + long time + strong solutions + various kinds porous material

Oxygen has 3 times the Magnetic Capacity of Ferrous Chloride which is the most magnetic of all liquids

Iron 1.000 000
~~Ferric~~ Oxygen 377.

Attract Oxygen into water by magnet, from air -

Probably Calder O in or Ferrous Chl more magnetic

Plucker's Table of Magnetics

Iron	100 000
Iron ore	40 227
Ferric oxide	286
Nickel	134
Specular ore	5 33
Hydrated Ferric oxide	1 56
Ferric Sulphate	1 11
Green Vitriol	78
Ferric Chl Conc Sol	98
Sol Ferric Sulphate "	5 8
Ferrous Chloride "	5 4
Ferrous Sulphate "	1 28

Equal weights

Farraday's Bequerel Table.
Ox Copper 17.5
Ferrous Chloride 63.5
Conc Sol -

Matte = How about
Iodic acid - Iodide Cu
Insol ether (Fe) Fe N.
Very Soluble -

How about Delandy
Ox Cu & Iodide ~~Sodic~~
I form Iodide Cu + O
oxidize Zinc - Mg - work
this out,

Have Fessenden try
Matte & Electrolyte with
Iodide & Bromides &
~~fluorides~~ -

Have Fossil
Boil in Evaporating
dishes (Unroasted)
Matte & Roasted
with Various Materials

Melt Matte &
add Cast iron so
as to double the
iron to make matte
plates.

Cuttyhunite --

To HCl Sol in matte plates
add Hypophosphorous acid
and heat water to 120 —
plates - think Cop be
Coherent as H combines
with reduced Copper also
try it in Sulphuric Sol
Heat Gang on given in book

The Hypophosphites may
be good mixers to produce
Coherent deposits.

Melt matte & add
Hydrated Ferric oxide
to rid S — also try
Ferric Chloride dry to
do same thing.

The only known Cupreous oxygen salts known are the Sulphites & double Sulphite of Cop. in vs Electrolysis of matte

Try action Litharge on fused matte –

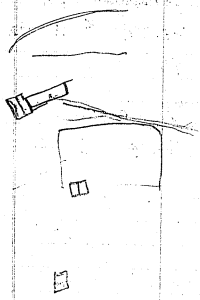
Oxide of Copper added to fused matte (10) to every atom of Cu_4S add 2 atoms of Cu_2O Convert the Sulphide into Sulphos acid gas & Copper

Thus dead roasted matte 1 lb might to desulphurize a melted lb unroasted

See if Equal mixture of Anhydrous Ni Fe & Cu Chlorides Can be fused if so & Evenly pass Current through & Electrolyze whole liquid & Melted perhaps Copper can be got on one pole & Iron be added at other pole Iron Electrodes being used

Iron Pyrites Hardness 6.5 —
Cop pyrites 3.5 @ 4 —
Trouble in GGL with
Quartz to make Cu Py
fine + soft ant —

Important —
Cuprous Chloride
is dissolved by
Sodium Hyposulphite
Ammonia NaCl or
Nathypo for matte bath



Arsenical pyrite
Fe 34. S 11 As
56.7

Iron pyrite.
Fe 53 S 46

Nickel-iron pyrite

Fe 58 Ni 3.17 - S 38

200
80 - (38)

360 | 1000
720
280
2360 9 times

S 38

Chalcopyrite

S 36. Cu 34

Fe 30.

Magnetic pyrite

Fe 61

S 38

Sinding Mag pyrite

#574 Size 1 x 6. Box 7